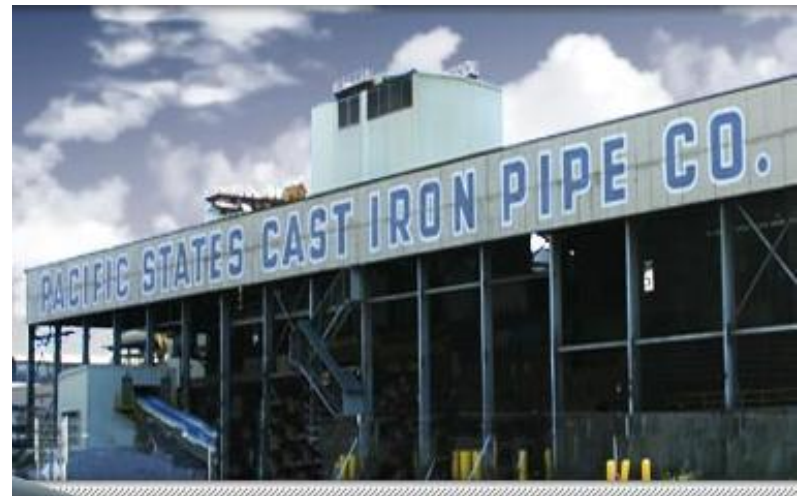


Utah Pollution Prevention (P2) Association

*Pacific States Cast Iron Pipe Company
Achievements in Pollution Prevention*



Brief History of Pacific States

Pacific States Cast Iron Pipe Company was established in 1926 as the western operating subsidiary of McWane Cast Iron Pipe Company. This foundry is located in Provo and serves thirteen western states, western Canada and the Pacific Rim.

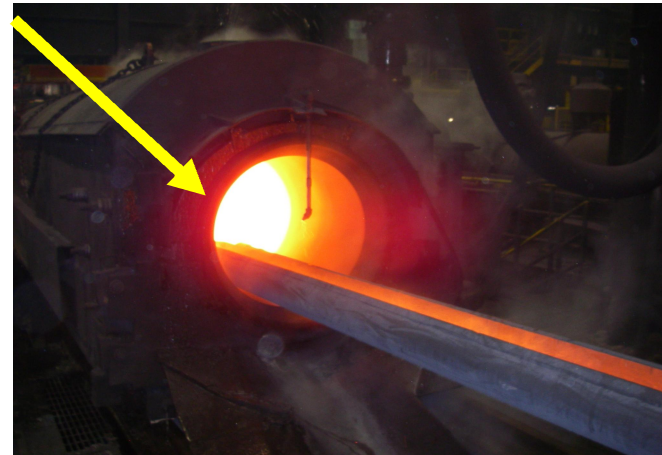


- ❑ Ductile iron pipe is used to move pressurized culinary (drinking) water.
- ❑ Product sizes—6” thru 30”
- ❑ Pipe joints—7 bell configurations
- ❑ Pipe pressure class types—12
- ❑ Lining materials—cement or epoxy linings
 - Epoxy lining for non-potable water



Key Process

- ❑ Hot iron is poured into Casting Machines and pipe are cast using the Delavaud method of centrifugally casting pipe in a water cooled steel mold.
- ❑ Cast approximately 600 ton of pipe daily.



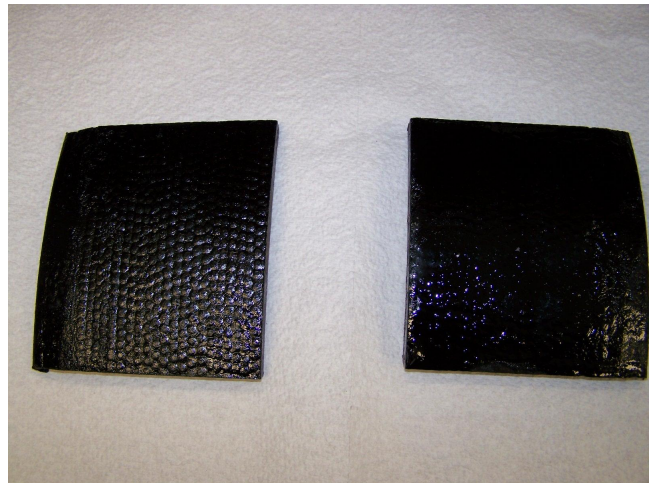
Coating

Greater than 98% of all pipe are either cement or epoxy lined and are painted inside and out.



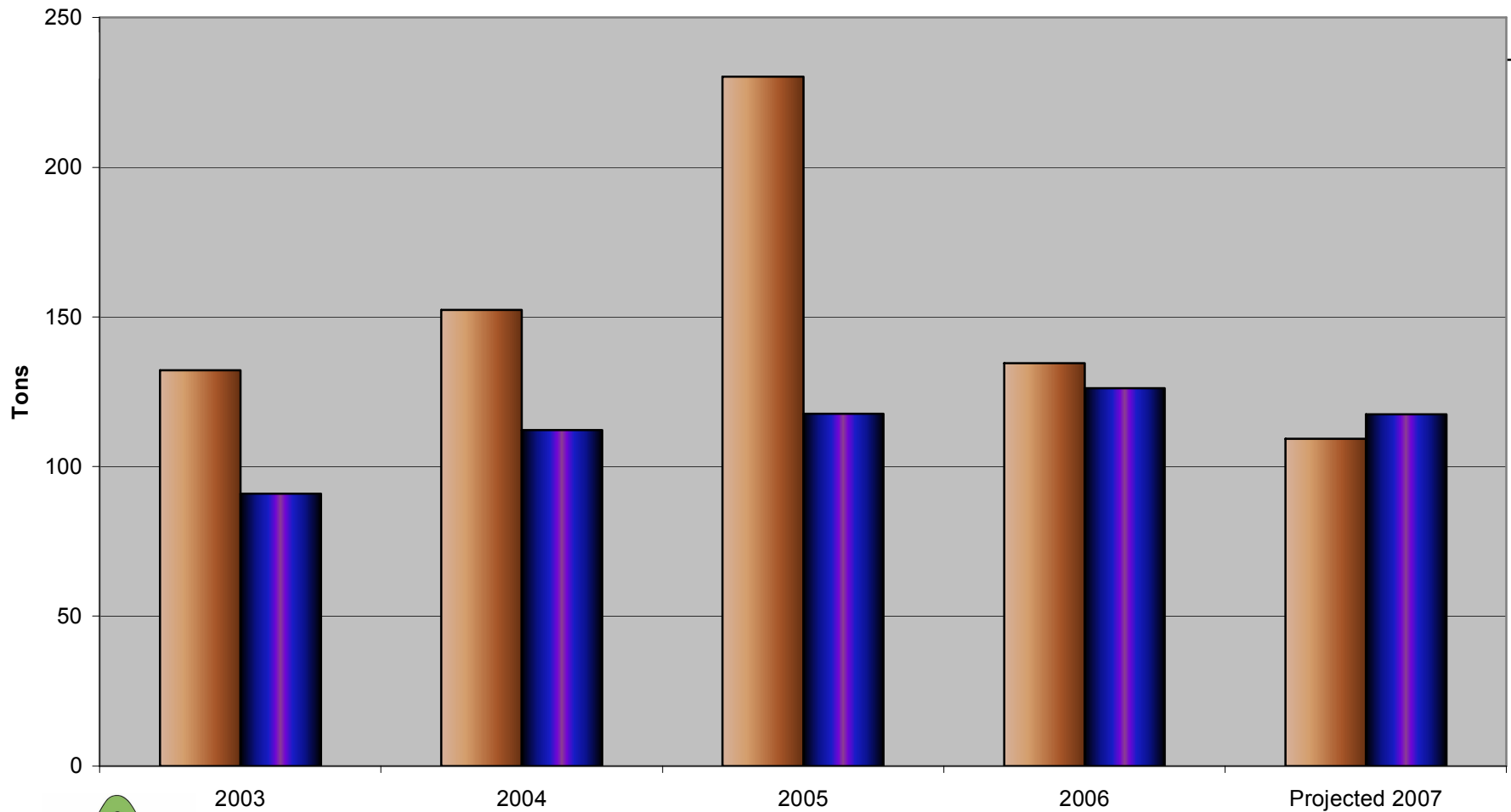
Volatile Organic Compounds (VOC)

- ❑ Substitution of waterbased, emulsified asphalt for standard blown, oxidized solvent based asphalt
 - Results in $> 95\%$ reduction in VOC emissions
 - Costs about \$0.60 /gal more than solvent based about \$200,000 in 2007



Product Substitution

Water-Based Emulsified Asphalt



■ tons VOC ■ kTons Pipe

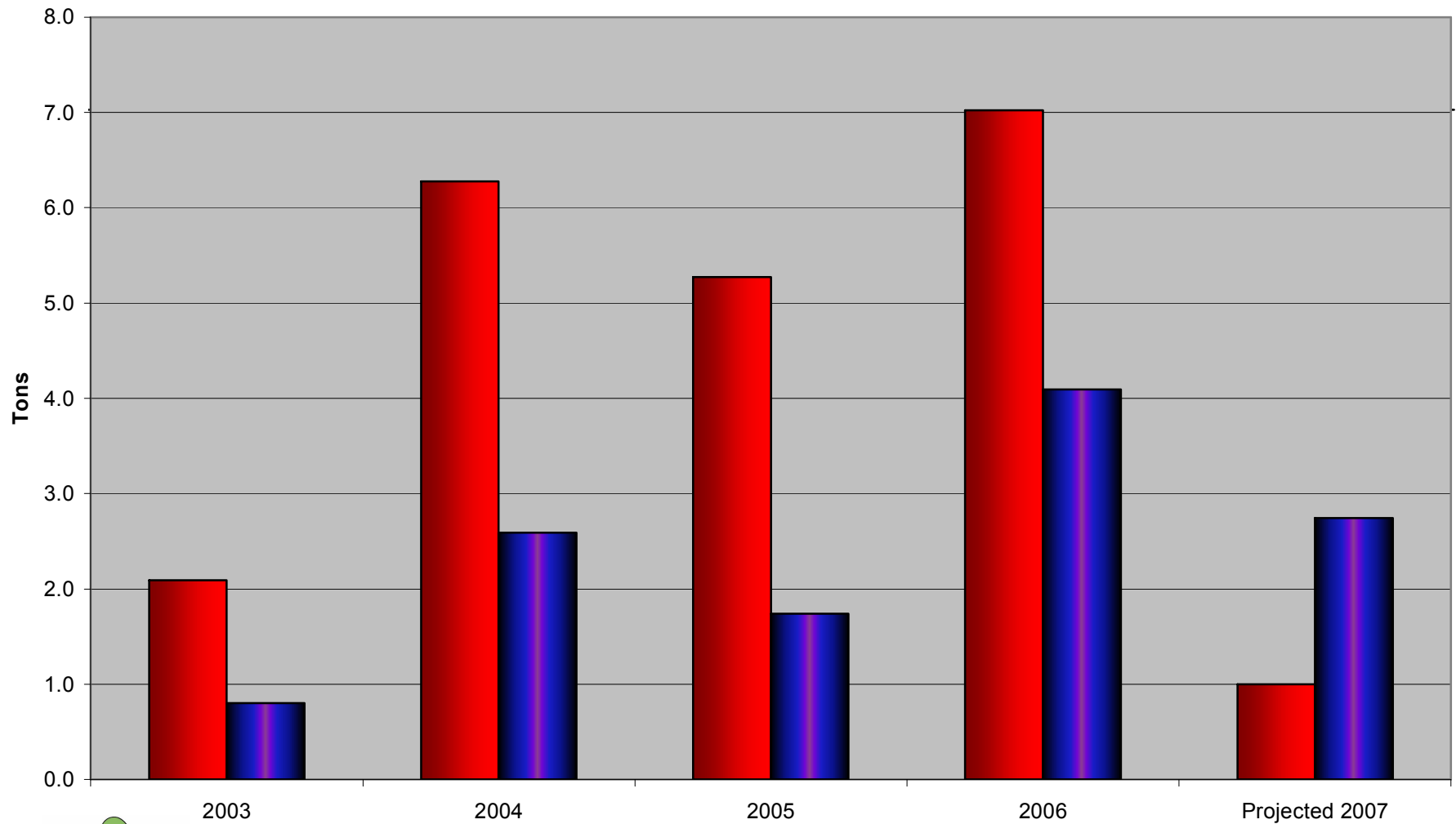
Lining Process

- Epoxy lined pipe used typically in sewer applications
- Contained 0.92 lb/gal xylene
- Reformulated to 0.025 lb/gal xylene
 - Xylene emissions reduced by more than 97%
 - Main savings is in emission fees
 - Ensure not falling into both the iron & steel MACT and surface coating MACT



Product Reformulation

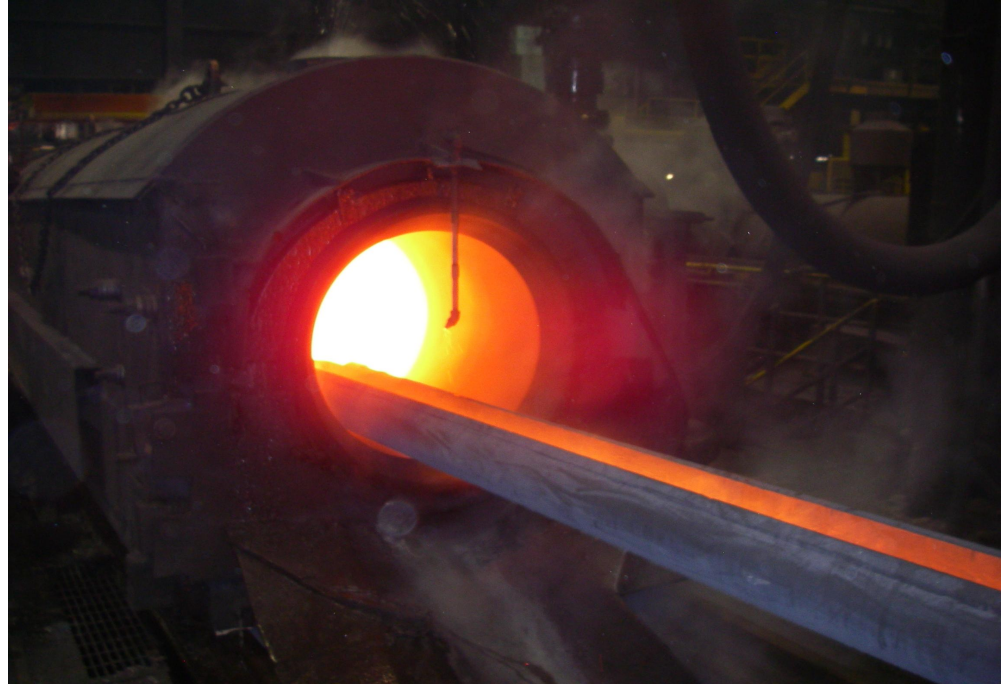
Remove Xylene



■ tons xylene ■ kTons Pipe

Sand Coating

- ❑ Coated sand is used to form cores that provide the interior relief of the bell.
 - Critical to have good quality to prevent iron loss



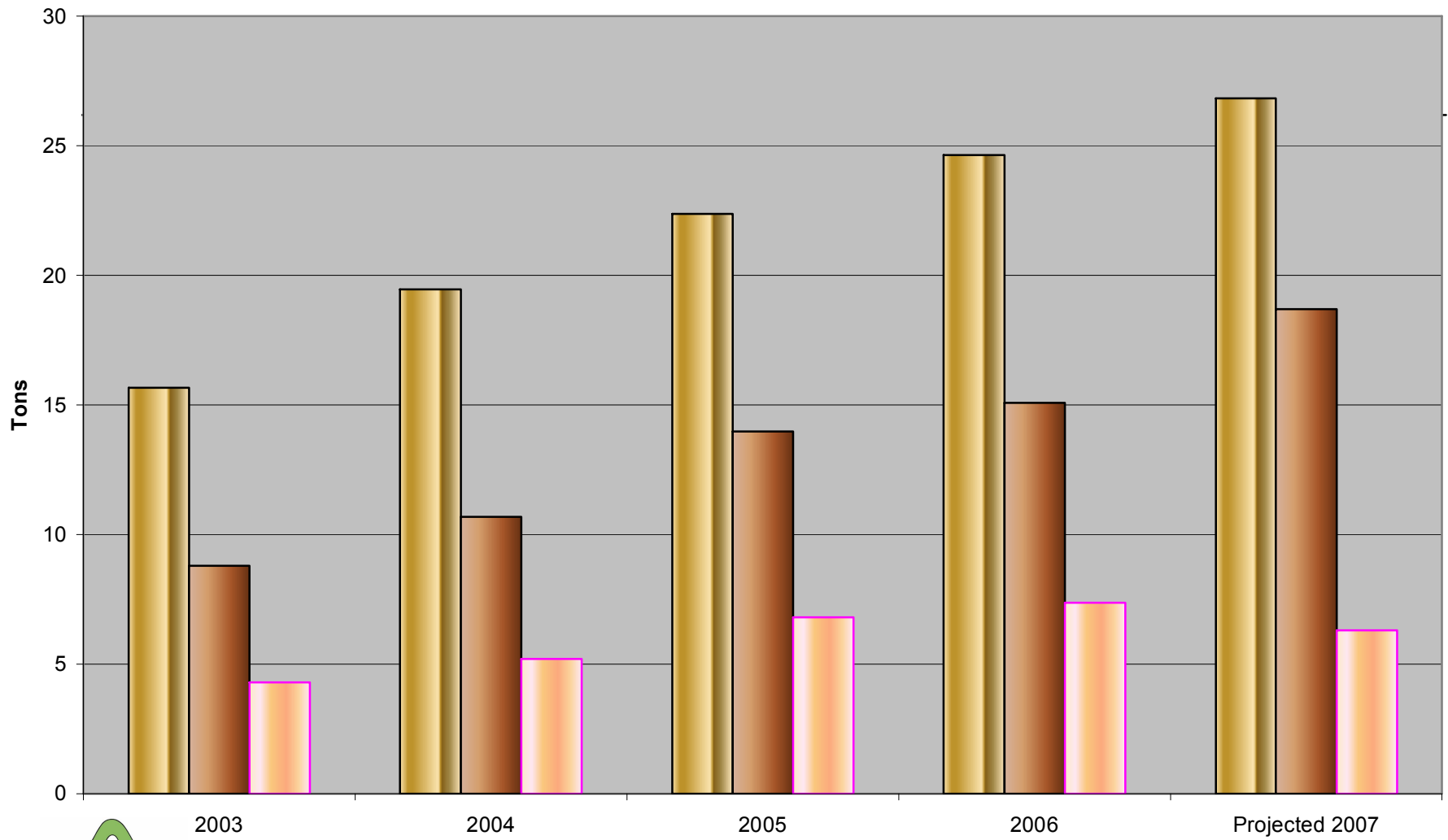
Sand Coating

- Sand source is critical
 - Purchased coated sand grain structure is rounded
 - Alternative is to coat our own sand
 - Our source is sub-angular grain structure
- Projected savings is > \$40,000 year in material costs
- Reduction of about 4,200 lbs in 2007





Product Supplement



■ Sand Made x100 ■ Resin Used x10 ■ Phenol Emissions

Water Reduction



Water Reduction

—Desire to close ponds

- ❑ Water originates in the basement area
- ❑ To close ponds water needs an alternative place to go
- ❑ Need to build a treatment plant
- ❑ Minimize the amount of water to be treated!



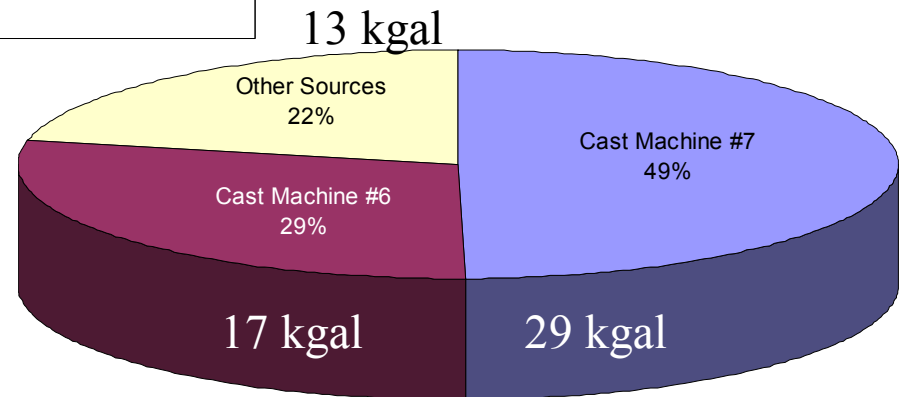
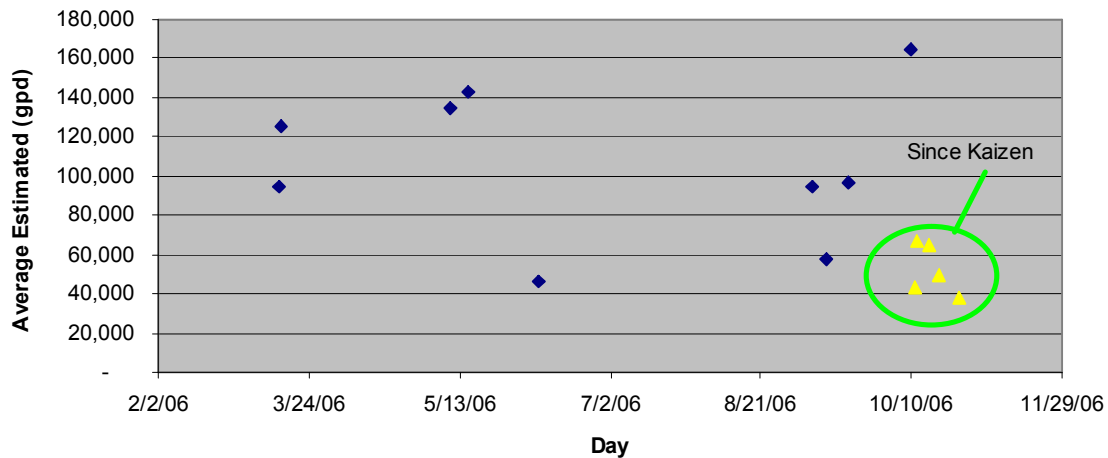
Water Reduction

- ❑ Shut off water—Tag out so operations people will know
- ❑ Use of Spring Valves (“Auto shut-off”) on hoses
- ❑ Rework trough coating circulation system
- ❑ Improve pipe mold inspections
- ❑ Identify combinations of equipment that work well together on minimizing leaks and study (copy) those tolerances
- ❑ Add gaskets
- ❑ Identify major causes of leaks and address them.



Water Reduction

Average Estimated Basement Waste Water Flow Rate



Water Reduction

- ❑ Stop placing water in basement
- ❑ Casting Machine #6
 - Capital cost for new water box as old is warped
- ❑ Casting Machine #7
 - Resize catch basin, pumping & control logic
- ❑ Estimated to have < 10,000 gpd
 - Originally estimated to have about 90,000 gpd
 - Wanting to use water internally as no desire to treat & discharge. Can find uses in good weather. Need to plan for cold



QUESTIONS?

